

REMARKS/ARGUMENTS

I. Introduction:

Claims 1, 8, 12, 15, 16, 21, 25, 30 are amended and claims 10, 23, and 32 are canceled herein. With entry of this amendment, claims 1, 3-9, 11-12, 14-16, 18-22, 24-25, and 27-31 will be pending.

II. Claim Rejections – 35 U.S.C. 103:

Claims 1, 3-9, 11-12, 14-16, 18-22, 24-25, and 27-31 stand rejected under 103(a) as being unpatentable over U.S. Patent Publication Nos. 2002/0172149 (Kinoshita et al.) and 2002/0067693 (Kodialam et al.).

The Kinoshita et al. patent is directed to a method and apparatus for protection path setup. Bandwidth is shared among protection paths only if there is no possibility that any of the protection paths will be used simultaneously (see, for example, paragraphs 72 and 73). As noted by the Examiner, Kinoshita et al. fail to teach a method wherein bandwidth to be protected of a link pair comprises a lesser of primary bandwidths of links of said link pair.

Kodialam et al. disclose dynamic backup routing of network tunnel paths for local restoration in a packet network. There is no discussion of defining bandwidth to be protected of a link pair as a lesser of primary bandwidths of links of the link pair, as set forth in claims 1, 12, 16, and 25. In the Response to the Arguments of the Advisory Action, the Examiner argues that a link pair may be any pair of links active or backup (see paragraph 2). However, the claims specifically refer to a “link pair *traversing a node to be protected*”. The claims have been amended to clarify that bandwidth to be protected of the link pair comprises a lesser of primary bandwidths of links of said link pair *traversing said node to be protected*.”

In paragraph 3 of the Response to the Arguments section of the Advisory Action, the Examiner states that Kodialam et al. teach protecting active paths by determining a backup path for every incident link of the node. Applicants invention, as set forth in the claims, requires more than merely protecting active or primary paths with backup paths. For example, in addition to establishing backup paths, claim 1 requires that the bandwidth to be protected comprises a lesser of primary bandwidths of links of said link pair traversing said node to be protected.

In the Response to Arguments section of the final Office Action, the Examiner states that “Kodialam teaches sharing of the backup bandwidths belonging to different demands in ¶ 30 and partial backup path in ¶ 40.” Paragraph 0030 discusses intra-demand and inter-demand sharing. This involves sharing capacity of the backup path, and not a link pair traversing a node to be protected. The backup path for failure of a node avoids all links incident on the failed node. The backup path is thus clearly not a link pair traversing a node to be protected.

At paragraph [0040], Kodialam et al. describe how to compute the cost of providing a given link a local backup. The cost is computed by summing the usage cost of links for each partial backup path that routes the demand. Thus, sections of the backup path are added together to get the total cost. These partial paths are part of the backup and are not a link pair traversing a node to be protected.

Accordingly, claims 1, 12, 16, and 25, as amended, and the claims depending therefrom, are submitted as patentable over Kinoshita et al. and Kodialam et al.

Regarding claims 8, 15, 21, and 30, Kodialam et al. do not show or suggest wherein there is at least one set of backup tunnels that protect disparate nodes and that consume more bandwidth on at least one link than provided by said at least one link's backup bandwidth pool. Backup tunnels that protect disparate nodes is not the same as the intra-demand sharing described in Kodialam et al. which is used to share demand between active paths having common links or nodes. Intra-demand sharing refers to sharing of capacity between backup links on the backup path for a demand when the links in the active paths have some links/nodes in common (paragraph 0030). Intra-

demand is further described at paragraph 0031 with respect to Fig. 3. Link l(8,4) is common to backup paths that backup links l(2,3) and l(3,4). Thus, backup capacity is shared on link l(8,4) as an example of intra-demand sharing. As shown in Fig. 3, intra-demand sharing covers a backup link that protects paths having the same node 303, rather than disparate nodes, as required by the claims. Paragraphs 0060 and 0061 specifically describe backup routing for a link failure and accounting for intra-demand sharing of backup bandwidth.

In a sincere effort to expedite prosecution, claims 8, 15, 21, and 30 have been amended to specify that establishing backup tunnels comprises signaling backup tunnels with zero bandwidth to adjacent nodes of each protected node, to further distinguish over the cited art.

Accordingly, claims 8, 15, 21, and 30, and the claims depending therefrom, are submitted as patentable over Kinoshita et al. and Kodialam et al.

III. Conclusion:

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,



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